

REMARKS

By this amendment, claims 1 and 2 have been amended and new claim 4 has been added. Support for the changes to claims 1 and 2 can be found, *inter alia*, in Tables A and B on pages 4 and 5 of the specification. Support for new claim 4 can be found in claims 2 and 3 as originally filed. Claims 1-4 are presented for further examination.

The rejection of claims 1-3 under 35 U.S.C. § 112, second paragraph, is believed overcome by the foregoing amendments. Specifically, the claims have been amended to delete reference to the curves in the figures. In view of the foregoing, reconsideration and withdrawal of the rejection are respectfully requested.

The rejection of claims 1-3 under 35 U.S.C. § 102(b) over Shimajiri, US 4,989,775 is respectfully traversed with respect to the amended claims.

The invention relates to a process for joining components made from aluminum or alloys of aluminum. According to the claimed process, the components are joined by brazing the components together using a flux that has an inventive cumulative particle volume distribution. Each of independent claims 1 and 2 has been amended to recite the required cumulative particle volume distribution in tabular form.

The cumulative particle volume distributions according to the present invention define the population of a range of particle sizes within the inventive fluxes in terms of an upper and lower limit. The upper and lower limits are expressed as a volume percentage of the entire flux sample. Importantly, because the data represents a cumulative particle volume distribution, the range (upper and lower limit) recited for a particular particle size represents the population of all particles in the flux having a particle size up to and including the recited particle size. In order to satisfy the claimed cumulative particle volume distributions, all of the tabulated distribution conditions must be satisfied.

Thus, by way of example, the flux according to claim 1 is required to

include between 0.25 vol.% and 3.00 vol.% of particles having a size up to 0.45 microns, and between 1.40 vol.% and 4.00 vol.% of particles having a size up to 0.55 microns, ... and between 96.00 vol.% and 100 vol.% of particles having a size up to 87.50 microns. The claimed cumulative particle volume distributions are not disclosed or suggested by Shimajiri.

Shimajiri relates to a method for brazing aluminum components. Shimajiri discloses that a flux used in such a brazing method can include particles having a size that ranges from 2 to 100 microns (see column 2, lines 57-61 and Table 3). Shimajiri does not, however, disclose or suggest a flux having the cumulative particle volume distribution required by the instant claims.

As noted above, the flux according to claim 1 must include between 0.25 vol.% and 3.00 vol.% of particles having a size up to and including 0.45 microns. According to the table in claim 1, the same flux must also include between 8.50 vol.% and 25.00 vol.% of particles having a size up to and including 1.85 microns. In a similar vein, referring to the table in claim 2, the flux according to claim 2 must include between 8.43 vol.% and 24.20 vol.% of particles having a size up to and including 1.85 microns. The minimum particle size disclosed by Shimajiri, however, is 2 microns. Thus, Shimajiri cannot possibly anticipate the claimed cumulative particle volume distributions, which require that the fluxes include a finite amount (at least 8.5 or 8.43 vol.%) of particles that have a size that is entirely outside of the particle size range taught by Shimajiri.

As noted in the Office Action, Shimajiri teaches one exemplary flux that includes only 80 micron particles. A flux comprising only 80 micron particles does not, however, satisfy all of the claimed distribution conditions. Rather, a flux comprising only 80 micron particles satisfies only the last condition in each of claims 1 and 2. Namely, and by way of example, a flux comprising only 80 micron particles satisfies the condition in claim 1 that between 96.00 vol.% and 100.00 vol.% of particles have a size up to and including 87.50 microns.

However, the 80 micron flux of Shimajiri fails all of the other conditions required by claims 1 and 2. For example, because Shimajiri's exemplary flux

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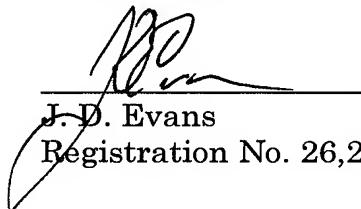
includes only 80 micron particles, it cannot anticipate the requirement recited in claim 1 that the claimed flux also include between 95.80 vol.% and 100.00 vol.% of particles having a size up to and including 73.50 microns. Furthermore, as noted above, the 80 micron flux of Shimajiri cannot possibly anticipate the requirement of claim 1 that the claimed flux include between 8.50 vol.% and 25.00 vol.% of particles having a size up to and including 1.85 microns, or the requirement of claim 2 that the flux include between 8.43 vol.% and 24.20 vol.% of particles having a size up to and including 1.85 microns. Pointedly, the 80 micron flux of Shimajiri does not include any particles having a size up to and including 1.85 microns.

Because Shimajiri does not teach or suggest a flux having the cumulative particle volume distributions required by independent claims 1 and 2, reconsideration and withdrawal of the rejection are respectfully requested. In view of the foregoing, the application is respectfully submitted to be in condition for allowance, and prompt favorable action thereon is earnestly solicited.

If there are any questions regarding this amendment or the application in general, a telephone call to the undersigned at (202) 624-2845 would be appreciated since this should expedite the examination process.

If necessary to effect a timely response, this paper should be considered as a petition for an Extension of Time sufficient to effect a timely response, and please charge any deficiency in fees or credit any overpayments to Deposit Account No. 05-1323 (Docket #037110.50643D1).

Respectfully submitted,



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